

REMARKS**I. STATUS OF THE CLAIMS**

Claims 1-5, 7-8, 11 and 12 are pending in the present application. Claims 1, 11 and 12 are the independent claims.

Claims 1 and 11 have been amended and claim 12 has been added. Proper support for the amendment to claims 1 and 11 and for new claim 12 is found in the specification at least at paragraphs [0028] through [0035] and in Figs. 4A and 5A.

II. THE REJECTION UNDER 35 U.S.C. §112:

Claims 1-5 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular it is recited that the limitation "the primary crystal grain boundaries... of the second plurality of thin film transistors," lacks antecedent basis.

Applicants respectfully traverse this rejection for at least the following reason.

Independent claim 1 recites at line 6, "a second plurality of thin film transistors in the driving region."

Accordingly, Applicants believe that claim 1 complies with the requirements of 35 U.S.C. §112, second paragraph and respectfully request that the rejection of independent claim 1 be withdrawn.

Claims 2-5 and 7-8 depend from claim 1 and also comply with the requirements of 35 U.S.C. §112, second paragraph. Accordingly, Applicants respectfully request that the rejection of claims 2-5 and 7-8 be withdrawn.

III. THE REJECTION UNDER 35 U.S.C. §102:

Claims 1-3, 5, 7-8 and 11 are rejected under 35 U.S.C. §102(b) as being anticipated by Mitanaga et al. (U.S. Patent 5,923,997).

Applicants respectfully traverse this rejection for at least the following reason.

Independent claim 1 recites a display device comprising, amongst other novel features, **primary crystal grain boundaries** in the polysilicon substrate in the **display region** and in the **driving region**; **secondary crystal grain boundaries** in the polysilicon substrate in the **display**

region and in the driving region; wherein the primary crystal grain boundaries are inclined to a first direction of current flowing from source to drain of each of the first plurality of thin film transistors at an angle of -30° to 30° and the secondary crystal grain boundaries are inclined to a second direction of current flowing from source to drain of each of the first plurality of thin film transistors and wherein the primary crystal grain boundaries are inclined to the second direction of current flowing from source to drain of each of the second plurality of thin film transistors at an angle of 30° to 150° and the secondary crystal grain boundaries are inclined to the first direction of the current flowing from source to drain of each of the second plurality of thin film transistors.

Mitanaga discloses a semiconductor device having a TFT formed on an insulating substrate, the semiconductor having a source, drain and channel regions. Mitanaga further discloses a relationship between crystal growth direction and the source-drain direction along which the channel current flows (column 12, lines 49-64). Mitanaga also discloses grain boundaries and their arrangement with respect to the source-drain direction. For example, in one embodiment Mitanaga teaches silicon crystals 215 extending laterally in one direction and grain boundaries 216 formed between the silicon crystals 215, extending in the same direction as the silicon crystals 215 (column 14, lines 56-65 and Fig. 5B). In another embodiment, Mitanaga discloses source and drain disposed in a direction perpendicular to the direction of the crystal growth, that is, the direction of the carrier movement is perpendicular to the direction of the crystal growth so that the carriers move so as to be transverse to the grain boundaries of the crystals (column 15, lines 5-27 and Fig. 5C). That is, Mitanaga discloses silicon crystals 215 and grain boundaries 216 extending in a direction **perpendicular** to the carrier movement.

Therefore, Mitanaga discloses grain boundaries 216 and silicon crystals 215 extending in the **same direction** with respect to the source-drain direction.

As noted above, the **primary crystal grain boundaries are inclined to a first direction of current flowing from source to drain of each of the first plurality of thin film transistors at an angle of -30° to 30° and the secondary crystal grain boundaries are inclined to a second direction of current flowing from source to drain of each of the first plurality of thin film transistors and wherein the primary crystal grain boundaries are inclined to the second direction of current flowing from source to drain of each of the second plurality of thin film transistors at an angle of 30° to 150° and the secondary crystal grain boundaries are inclined to the first direction of the current flowing from source to drain of each of the second plurality of thin film transistors.**

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §

102(b) should be withdrawn because Mitanaga fails to teach or suggest each feature of independent claim1, as amended.

As pointed out in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim." Thus, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. v. Union Oil Co. Of California, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)."

Furthermore, Applicants respectfully assert that the rejection of dependent claims 2, 3, 5, 7 and 8 under 35 U.S.C. §102(b) should be withdrawn at least because of their dependence from claim 1 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 2, 3, 5, 7 and 8 also distinguish over the prior art.

Independent claim 11 recites a display device comprising, amongst other novel features, a driving region; a plurality of thin film transistors in the driving region; primary crystal grain boundaries in the polysilicon substrate in the driving region; and secondary crystal grain boundaries in the polysilicon substrate in the driving region; wherein the **primary crystal grain boundaries are inclined to a direction of current flowing from source to drain** of each of the plurality of thin film transistors **at an angle of 30° to 150° and the secondary crystal grain boundaries are substantially parallel to the current flowing** from the source to the drain.

As noted above, Mitanaga discloses grain boundaries 216 and silicon crystals 215 extending in the **same direction** with respect to the source-drain direction.

Accordingly, Applicants respectfully assert that the rejection of claim 11 under 35 U.S.C. § 102(b) should be withdrawn because Mitanaga fails to teach or suggest each feature of independent claim11, as amended.

Newly added independent claim 12 recites similar features of independent claim 11 and therefore, Mitanaga fails to teach or suggest such features on independent claim 12.

Accordingly, Applicants believe that newly added independent claim 12 is allowable.

IV. CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the

application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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